Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

Amendments to the Claims:

Claims 1-40 are pending in this application. This listing of claims will replace all prior versions, and listings of claims in the application. Amendments to the claims are made without prejudice or disclaimer.

Listing of Claims:

1. (Currently amended)   A system for delivering content to a subscriber terminal on demand through a communication network, the system comprising:

a content preparation module for pre-encrypting the content offline to form pre-encrypted content;

an on-demand module receiving the pre-encrypted content from the content preparation module, for storing, and transmitting the pre-encrypted content to the subscriber terminal when authorized;

an encryption renewal system interfacing with the on-demand module to generate time limited entitlement control messages allowing the pre-encrypted content to be decryptable for a time limited designated duration; and

a conditional access system for providing a periodical key to the encryption renewal system, to permit generation of the time limited entitlement control messages that convey information required to decrypt the pre-encrypted content including the periodical key to the subscriber terminal.

2. (Original)   The system of claim 1 wherein the communication network is a cable network for distributing audio/video content from a cable central office to all or a subset of subscriber terminals.

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

3. (Currently amended)   A method of delivering content from one or more cable systems to subscriber terminals within the cable systems, the cable systems being communicatively coupled to an offline encryption device, the method comprising:

receiving by a first cable system, a request for the content from a first subscriber terminal of the first cable system;

pre-encrypting, by the offline encryption device, the content to form pre-encrypted content prior to the step of receiving a request;

generating an encryption record containing parameters employed for encrypting the content;

based on the encryption record and a first key information, generating one or more time limited control messages for permitting access to the pre-encrypted content; and

transmitting the pre-encrypted content associated with the one or more control messages to the first subscriber terminal for decryption of the pre-encrypted content.

4. (Currently amended)   The method of claim 3 further comprising

receiving, by a second cable system, a request from a second subscriber terminal of the second cable system, and

based on the encryption record and a second key information, generating one or more time limited control messages for permitting the second subscriber terminal to access the pre-encrypted content.

5. (Original)   The method of claim 3 wherein the first key information is provided by a conditional access system that uses the key information to control the first subscriber terminal.

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

6. (Original)   The method of claim 5 wherein the key information is for a key that is periodical and valid for a designated duration.

7. (Original)   The method of claim 6 wherein the designated duration is shortly before, contemporaneous with, or shortly after the first key is changed by the conditional access system.

8. (Currently amended)   The method of claim 3 wherein the one or more time limited control messages is a first entitlement control message for conveying information to the first subscriber terminal to compute a key.

9. (Original)   The method of claim 3 further comprising

changing the first key information after a designated duration, and reporting the key change by the first cable system.

10. (Currently amended)   The method of claim 3 further comprising

retrofitting a second time limited entitlement control message to the pre-encrypted content for permitting access to the pre-encrypted content after the first key information expires.

11. (Original) The method of claim 10 wherein the retrofitting of the second control message employs a second key information.

12. (Currently amended)   The method of claim 11 wherein the step of retrofitting the second time limited entitlement control message is synchronized with changing of a first key information to the second key information.

13. (Currently amended)   The method of claim 3 further comprising

providing the parameters from an encryption renewal system that generates the one or more time limited entitlement control messages.

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

14. (Original) The method of claim 13 wherein the step of generating an encryption record is by an offline encryption system.

15. (Original) The method of claim 4 further comprising

providing first and second service tiers in the first cable system to further limit access to the pre-encrypted content.

16. (Currently amended) The method of claim 15 further comprising

generating a first entitlement control message allowing the first subscriber terminal to access the pre-encrypted content only in the first service tier, and

generating a second entitlement message allowing a second subscriber terminal to access the pre-encrypted content only in the second service tier.

17. (Currently amended) A system for delivering first and second content to a subscriber terminal on-demand through a communication network, the system comprising:

means for pre-encrypting the first and second content offline to form first and second pre-encrypted content, and for generating a first encryption record associated with the first pre-encrypted content, and a second encryption record for the second pre-encrypted content;

means for generating a first and second time limited entitlement messages that allow decryption of the first and second pre-encrypted contents, respectively;

a conditional access system for providing information included in the first and second time limited entitlement messages by the means for generating; and

means for receiving the pre-encrypted content from the means for pre-encrypting, forwarding the first and second encryption records to the means for generating which generates the first and second time limited entitlement messages for forwarding to the subscriber terminal.

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

18. (Original) The system of claim 17 further comprising means for generating a third entitlement message.

19. (Currently amended)   The system of claim 18 wherein the third entitlement message is for permitting access to the first pre-encrypted content after expiration of the first time limited entitlement message.

20. (Currently amended)   A method using an encryption renewal system, the method permitting first and second communication systems to control subscriber access to pre-encrypted content that was previously encrypted offline, the method comprising:

receiving, by the encryption renewal system, a first cryptographic information from the first communication system;

receiving an encryption record containing parameters employed during encryption to form the pre-encrypted content; and

generating for the first communication system, a first time limited control message for providing access to the pre-encrypted content based on the first cryptographic information and the first encryption record.

21. (Original) The method of claim 20 further comprising

receiving, by the encryption renewal system, a second cryptographic information from the second communication system;

receiving the encryption record containing parameters employed during encryption to form the pre-encrypted content; and

generating for the second communication system, a second control message for providing access to the pre-encrypted content based on the second cryptographic information and the encryption record.

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

22. (Original) The method of claim 20 further comprising generating a third control message upon expiration of the first control message, to provide access to the pre-encrypted content.

23. (Original) The method of claim 20 further comprising

retrieving entitlement control messages associated with the pre-encrypted content; and

specifying a tier to which a subscriber is authorized when the pre-encrypted program is purchased.

24. (Currently amended)   A system for delivering content to a subscriber terminal on-demand through a point-to-point communication network, the system comprising:

an offline encryption system having software containing one or more instructions for pre-encrypting the content to form pre-encrypted content before a content request is received from the subscriber terminal;

a video on-demand system including software having one or more instructions for receiving the pre-encrypted content from the offline encryption system, and forwarding the pre-encrypted content to the subscriber terminal; and

an encryption renewal system interfacing with the offline encryption system to provide encryption parameters for encrypting the content, and interfacing with the video on-demand system to generate time limited entitlement control messages allowing the pre-encrypted content to be decryptable for a time limited designated duration, wherein the entitlement control messages are generated by using a periodical key.

25. (Original) The system of claim 24 further comprising a conditional access system having software interfacing with a billing system to coordinate subscriber access to the pre-encrypted content based on a subscriber purchase.

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

26. (Original) The system of claim 24 further comprising an interactive system including software having instructions for providing two-way subscriber interaction between the subscriber system and the video on-demand system.

27. (Original) The system of claim 24 further comprising one or more service tiers to secure the pre-encrypted content.

28. (Original) The system of claim 24 wherein the encryption renewal system generates first and second versions of an entitlement control message, for accessing the pre-encrypted content in a first and a second tier, respectively.

29. (Original) The system of claim 24 further comprising

retrieving entitlement control messages associated with the pre-encrypted content, and specifying the tier for which a subscriber is authorized when the pre-encrypted program is purchased.

30. (Original) The system of claim 24 wherein the encryption renewal system provides a call back mechanism indicating the next time by which the video on-demand system should contact the encryption renewal system.

31. (Original) The method of claim 20 further comprising providing a call back mechanism.

32. (Original) The method of claim 20 further comprising maintaining a list of first, second and third communication systems and their addressing information.

33. (Original) The method of claim 3 wherein the step of pre-encrypting is carried out using a third key, and the encryption record contains information about the third key.

34. (Original) The method of claim 33 further comprising translating the third key into the first key information.

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

35. (Original) The system of claim 25 wherein the video on-demand system and the conditional access system are decoupled.

36. (Original) The system of claim 25 wherein the video on-demand system and the conditional access systems comprise a first cable system, each communicably coupled to the encryption renewal system.

37. (Original) The system of claim 36 further comprising a second cable system having a second conditional access system and a second video on-demand system each communicably coupled to the encryption renewal system.

38. (Cancelled)

39. (Cancelled)

40. (Original) The method of claim 20 further comprising assigning subscriber tiers, so that only a designated number of subscribers share each subscriber tier within a fiber node.

41) (New)   A system for delivering content to a subscriber terminal on demand through a communication network, the system comprising:

a content preparation module for pre-encrypting the content offline to form pre-encrypted content;

an on-demand module receiving the pre-encrypted content from the content preparation module, for storing, and transmitting the pre-encrypted content to the subscriber terminal when authorized;

an encryption renewal system interfacing with the on-demand module to generate entitlement control messages allowing the pre-encrypted content to be decryptable for a designated duration without requiring decryption of said pre-encrypted content; and

Appl. No. 09/898,184
Amdt. dated August 24, 2004
Reply to Office Action of June 17, 2004

PATENT

a conditional access system for providing a periodical key to the encryption renewal system, to permit generation of the entitlement control messages that convey information required to decrypt the pre-encrypted content including the periodical key to the subscriber terminal.

42. (New)   The system of claim 41 wherein the communication network is a cable network for distributing audio/video content from a cable central office to all or a subset of subscriber terminals.